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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,993	10/20/2003	Ok Byung Kim	1514.1031	1374
21171	7590	05/03/2005	EXAMINER	
STAAS & HALSEY LLP SUITE 700 1201 NEW YORK AVENUE, N.W. WASHINGTON, DC 20005			RIELLEY, ELIZABETH A	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 05/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/687,993

Applicant(s)

KIM ET AL.

Examiner

Elizabeth A. Rielley

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/20/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.
3. Claims 6 and 11 are objected to because of the following informalities: the subject matter expressed in the claims is essential to the application, yet not shown in the drawings. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1–3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Mitnaga et al (US 5923997)

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6. In regard to claim 1, Mitnaga et al teach a display device with a polysilicon substrate (250; figures 3b and 5a; column 13 line 47 to column 14 line 55), comprising: a display region (column 9 line 63 to column 10 line 4; not shown in the drawings); a first plurality of thin film transistors in the display region (figure 1d); and primary crystal grain boundaries (216; figure 5B; column 14 lines 55-65) in the polysilicon substrate in the display region; wherein the primary crystal grain boundaries are inclined to a first direction of current flowing from source (208) to drain (210) of each of the first plurality of thin film transistors at an angle of -30.degree. to 30.degree (figure 5b; column 14 line 56 to column 15 line 4).
7. In regard to claim 2, Mitnaga et al ('997) teach the primary crystal grain boundaries (216) are parallel to the first direction of current (column 14 lines 48-55).
8. In regard to claim 3, Mitnaga et al ('997) teaches a first number of the primary crystal grain boundaries exist in active channel regions of each of the first plurality of thin film transistors (column 13 line 66 to column 14 line 12).
9. In regard to claim 5, the Applicant is claiming a display device including a method (i.e.: process) of making the polysilicon substrate; consequently, claim 5 is considered a "product-by-process" claim. In spite of the fact that a product-by-process claim may recite only process limitations, it is the product and not the recited process that is covered by the claim. Further, patentability of a claim to a product does not rest merely on the difference in the method by which the product is made. Rather, it is the product itself, which must be new and not obvious (see MPEP 2113). Hence, Mitnaga et al ('997) disclose of a polysilicon substrate meets the structural limitation of the claimed invention.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 4 and 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mitnaga et al (US 5923997) in view of Yamazaki et al (US 20020043662).

12. In regard to claim 4, Mitnaga et al ('997) teach all the limitations set forth, as described above, except display device is an organic electroluminescent display device. Yamazaki et al ('662) teach the use of polysilicon crystal grain boundaries in a thin film transistor for an organic electroluminescent display device (paragraphs 239-245) in order to more quickly produced organic EL devices. Hence, it would have been obvious at the time of the invention to one of ordinary skill in the art to modify the display device of Mitnaga et al ('997) with the organic EL device of Yamazaki et al ('662). Motivation would be to more quickly produce organic EL devices.

13. In regard to claims 6-9 and 11, Mitnaga et al ('997) discloses all the limitations set forth, as described above, including teaching a second plurality of thin film transistors, wherein the primary crystal grain boundaries located in an active channel region of the second TFT are inclined to a direction of current flowing from source to drain of each of the second plurality of thin film transistors at an angle of 30.degree. to 150.degree, as well as being perpendicular (claim 16). Mitnaga et al ('997) is silent

concerning the limitation that the second TFT is the driving region of the display device, and the display device is an organic EL device. Yamazaki et al ('662) teaches a first region of a display device is pixel portion, and a second region is a driver circuit of an organic EL device (figure 25). Hence it would have been obvious at the time of the invention to one of ordinary skill in the art to combine the plurality of thin film transistors with two different primary crystal grain boundary orientations, with the two TFT regions, driving and pixel, of Yamazaki et al ('662) in order to produce a fully functioning display device, complete with driving and displaying capabilities.

14. In regard to claim 10, the Applicant is claiming a display device including a method (i.e.: process) of making the polysilicon substrate; consequently, claim 10 is considered a "product-by-process" claim. In spite of the fact that a product-by-process claim may recite only process limitations, it is the product and not the recited process that is covered by the claim. Further, patentability of a claim to a product does not rest merely on the difference in the method by which the product is made. Rather, it is the product itself, which must be new and not obvious (see MPEP 2113). Hence, Mitnaga et al ('997) disclose of a polysilicon substrate meets the structural limitation of the claimed invention.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jung (US 6177301) discloses growing silicon grains orientated at a first direction, then at a second direction for a TFT.

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16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth A. Rielley whose telephone number is 571-272-2117. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Elizabeth Rielley

Examiner
Art Unit 2879

msy 5/1/05
Mariceli Santiago
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